Ontologies for Interoperability: a Tutorial

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Abstract. Interoperability has been defined as the capability of two (or more) actors (natural or artificial) to effectively cooperate for achieving a given objective. A cooperation takes place by exchanging messages that require a common interpretation, despite the fact that each actor is characterised by a different system of symbols (e.g., they speak different languages). To this end, at the beginning of a cooperation, the two (or more) actors need to confront their respective views of the world (for the fragment of interest) and agree on a common conception. The latter can be represented by an ontology. In this tutorial, after a brief introduction on the nature of an ontology, and how such a philosophical notion has been recently revised to be managed by computers, we address ontology languages and the most relevant ontology processing operations, in particular querying and reasoning. Successively, we consider the problem of a multi-ontology setting and the key questions arising in this context. Finally a brief account of the ontology-based services for interoperability and a few engineering issues will be presented.